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TITLE: Compensating dimensional variations in NC or CNC machine - determining workpiece deviation using e.g. laser beam and detectors and calculating $\frac{\text{corrected}}{\text{corrected}}$ machine settings for all degrees of freedom

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ABSTRACTED-PUB-NO: DE 4028006A

BASIC-ABSTRACT:

An NL machine tool of a vertical milling type has a vertical machine frame (3) that supports the headstock (4). The <u>cutter</u> removes material from the component which is moved in X, Y and Z planes.

The machine frame is fitted with detectors (7, 8) that monitor the deflections that occur which result in the surface of the workpiece being angled. The detector signals are used to calculate a <u>correction</u> that is applied to the position command values. The detectors pref. detect the position of a laser beam.

ADVANTAGE - Provides compensation for thermal effects and deformation due to static or dynamic forces etc. ABSTRACTED-PUB-NO:

DE 4028006C **EQUIVALENT-ABSTRACTS:**

The method of compensating measurement errors (deviations) of numerically controlled (NC) or CNC machine tools involves initially establishing the travel (traverse) and infeed movements of the machine tool for processing a workpiece, followed by calculating modified traverse and infeed movements of the machine tool in all degrees of freedom in order to manufacture the workpiece with the required dimensions.

Positional sensitive detectors (7, 8) are used to measure the values of the measurement errors of the machine tool, from which values are calculated the correction values (deltax(z), deltay(z)) for the discrete degrees of freedom of the machine tool. The modified traverse and infeed movements are generated so that the movements with calculated correction values (deltax(z), deltay(z)), as established by a parts programme, are combined with sign correction.

ADVANTAGE - Simplified compensation of all measured errors or deviations for machine tools.

CHOSEN-DRAWING: Dwg.5/6 Dwg.5/6

TITLE-TERMS: COMPENSATE DIMENSION VARIATION NC CNC MACHINE DETERMINE WORKPIECE DEVIATE LASER BEAM DETECT CALCULATE CORRECT MACHINE SET DEGREE FREE

DERWENT-CLASS: P56 R11 R26 S02 T06 X25

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